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POLAND DEVELOPS NEW FUNGICIDE

On 2 November 1949, the ZZK (Zjednoczone Zaklady Koksо-chemiczne, Associated Coal-Tar Derivatives Plants) requested the ITB (Instytut Techniki Budowlanej, Institute of Construction Technology) to study the properties of fungicides, standardize the quality of their acid components, and increase the fungicidal efficiency of Impregnol, a preparation produced by ZZK. The problem of finding preparations suitable for mass impregnation of lumber is of great importance in Poland both for economic reasons and because of the rising incidence of fungi in old and new structures alike. The Research Center of Wood Technology (Zaklad Technologii Drewna) of the ITB immediately undertook the commissioned research, with the following results:

Impregnol, a product of the distillation of tar from deciduous trees, varies slightly in composition for samples taken in 3 successive months. Its effectiveness was tested for cultures of Merulius lacrimans and Polisticus versicolor.

Impregnol I, containing 47 percent of the fraction which boils between 200-225 degrees centigrade (mostly raw creosote) and 21 percent of the fraction with the highest boiling point, has the lowest fungicidal properties. Impregnol II, containing 32 percent of the former fraction and 46 percent of the latter fraction, is more effective. The most potent is Impregnol III, which contains 24 percent of the former fraction and 46 percent of the latter fraction.

Experiments showed that when dry sodium fluoride was added to Impregnol, its fungicidal property increased slightly. Addition of an aqueous solution of fluoride increased this property even more.

Impregnol is a powerful fungicide. It equals or surpasses all nonfortified carbolineums and such salt preparations as sodium fluoride or fluralsil.

Impregnol exhibits good properties of impregnation and does not wash out too easily from the wood. It does not destroy the wood fibers. It may even strengthen the wood through the concentration of pitch in the cellular structure. The odor of Impregnol is not too disagreeable, and its vapor is

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relatively harmless to human health. Since the fungicidal property of the preparation increases with moisture, it is especially suitable for foundations, beams, floors, etc. Impregnol was found to be a good solvent for all types of organic chemical compounds which can be used to produce inexpensive impregnating mixtures. Impregnol can even be used to produce emulsions by adding aqueous solutions of organic salts. Finally, Impregnol is inexpensive and can be used on a wide scale.

Impregnol has certain disadvantages. It has a corrosive effect on metal. Its corrosive effect, however, is six times weaker that that of 5-percent zinc chloride, and seven times weaker than that of fluralsil. The corrosive effect can be avoided, to a certain extent, by adding a small quantity of potassium bichromate solution to Impregnol. The toxic strength of Impregnol decreases somewhat from year to year with the partial evaporation of phenol. This volatility can be prevented easily and inexpensively by the addition of nonvolatile and inexpensive fungicides.

Other disadvantages of Impregnol are its highly inflammable nature and its black color.

Previously, products of wood tar distillation were not widely used as impregnators because of their low toxic property, and for economic reasons. At present, since there is a shortage of inexpensive impregnating materials, Impregnol could be substituted.

Further experiments are being carried out on the use of Impregnol in the production of fungicidal mixtures which will be tested by ITB.

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